

REMARKS

The latest rejection of claims 1 – 7, 10 – 16, 19 -25 and 28 under 35 U.S.C. §103(a) as being unpatentable over Soluri et al. (US Pub. No. 2002/0175289) ("Soluri"), in view of Hase et al. (US Patent No. 5,099,134) ("Hase") and Nishiki (US Patent No. 4,725,734), all previously of record, and the rejection of claims 8, 9, 17, 18, 26 and 27 as being unpatentable over Soluri, Hase, Nishiki and Melcher et al. (discussed below) are traversed.

In the first Office action dated September 8, 2005, claims 1 – 27 were rejected as being unpatentable over Soluri in view of Hase, and claim 28 was rejected as being anticipated by Hase. In the second Office action dated April 19, 2006, claims 1 – 28 were rejected as being unpatentable over Soluri in view of Hase. In the third Office action (first final action) mailed November 7, 2006, the rejection of claims 1 – 28 as being unpatentable over Soluri in view of Hase was maintained and made final.

In the fourth Office action dated February 27, 2007, the final rejection of claims 1 – 28 as being unpatentable over Soluri in view of Hase was withdrawn, and a new ground of rejection of claims 1 – 28 as being unpatentable over Hase in view of Tang (US Patent No. 5,949,850) and Nishiki was made. In the fifth Office action (second final action), the rejection of claims 1 – 28 as being unpatentable over Hase in view of Tang and Nishiki was maintained and made final.

Now, in response to Appellant's brief on appeal, the final rejection of claims 1 -28 as being unpatentable over Hase in view of Tang and Nishiki has been withdrawn, and

the Office has inexplicably reverted to the original rejection of claims as being unpatentable over the proposed base combination of Soluri in view of Hase, which was withdrawn over 18 months ago, while adding Nishiki and newly cited US Patent No. 5,961,714 to Melcher et al. for their alleged disclosure of secondary features. As it was in the responses filed February 8, 2006 and January 9, 2007, the proposed combination of Soluri with Hase is traversed as being improper.

As acknowledged by applicants in the specification, Soluri does disclose a collimator with integrated crystals to address alignment problems. However, Soluri's collimator is fabricated by a cumbersome process requiring the formation of elongated holes in a high atomic number material. Hase fails to disclose the placement of any pixellated scintillators in the holes 15 formed by the partition plates 1 and 2. To the contrary, Hase discloses a fan-beam focusing collimator which functions to focus radiation in a converging manner onto a scintillation crystal (note fan-beam focusing slits 3, Fig. 1). That Hase does not place any pixellated scintillators into the collimation holes is made further apparent to those skilled in the art by the disclosure of radiation transparent collimation frame bottom element 12 (Fig. 4; col. 4, lines 29-30). Manifestly, the only reason for making the bottom frame 12 radiation transparent is to allow radiation to pass through and out of the collimator frame to a scintillator positioned adjacent to the collimator.

Thus, those skilled in the art would not have been motivated by Hase to form the septa 11 of the Soluri scintigraphic device from plates with focused slits as proposed in

the Office action. The fan-beam focusing collimation obtained by the use of the partition plates 1 and 2 of Hase is fundamentally different from the pixellated scintillator device of Soluri, and is incompatible with such device. In particular, Hase is concerned with focusing of radiation at a predetermined location, through the use of a converging fan-beam collimator. Such focusing is inapposite to the Soluri device, which does not focus radiation but instead is based on parallel beam radiation detection. Hase does not recognize any deficiency in the Soluri device that would be solved by the Hase device. Therefore, Hase contains no teaching, suggestion or motivation from which those of ordinary skill in the art would have sought to make the modification proposed in the Office action. Only the present application teaches an improvement in pixellated collimator fabrication and reflective treatment, and only a reading of the present application would have suggested the combination of prior art as set forth in the Office action.

As the Examiner knows, however, hindsight reconstruction of the claimed invention is not a proper basis upon which to make a determination of obviousness under 35 U.S.C. § 103. The teaching, suggestion or motivation instead must come from the prior art itself. Col. 1, lines 45 -52 of Hase, cited as purported combinational motivation by the Office action, simply states that objects of the Hase invention are to provide a collimator whereby improved high sensitivity and high resolution are simultaneously achieved, and manufacturing yield is improved. These broad, general statements of providing a "new and improved" collimator do not constitute the specific reasoning to combine different prior art references that would make the proposed

combination of references obvious within the meaning of 35 U.S.C. § 103. Clearly, improved sensitivity, high resolution and improved manufacturing yield are universally desired objectives in the medical imaging field, yet does not mean that one of ordinary skill in the art would have sought to modify every collimator in existence with the Hase reference simply because Hase articulated these objectives in the context of his invention.

In contrast, the prior art must be considered in context and as a whole. In this regard Hase discloses a fan-beam focusing collimator which functions to focus radiation in a converging manner onto a scintillation crystal (note fan-beam focusing slits 3, Fig. 1). Hase teaches the requirement of a box frame 13 as shown in Fig. 5, with walls 9 and transparent bottom frame element 12, as a necessary structural requirement of the disclosed collimator. Therefore, the collimator of Hase is intended to be used, and in fact must be used, with a scintillation crystal slab. There simply is no suggestion or teaching in Hase of any other use of the disclosed collimator.

As previously explained, each of the independent claims requires that at least a portion of the surfaces of the **sheets forming the collimation grid** be coated with an optically reflective material. The outstanding Office action relies on Fig. 3 of Soluri as allegedly meeting this claim limitation. This position is incorrect. Soluri discloses in paragraph 0038 regarding Fig. 3 that the lateral surfaces 23 and base face 22 of each **individual crystal 20** are coated by a layer 24 of optically reflecting material. The layer 24 does not coat or cover any portion of the septum 11 as alleged in the Office action.

Soluri states that the lateral surface of the crystal **in the interspace** with the septa is coated. This clearly indicates that there exists a spacing between the crystal and the septa, such that the coating 24 covers the crystal surface and does not cover the surface of the septum 11. Merely having a reflecting layer of a crystal adjacent to a septum does not correspond to **coating** the surface of the septum with a reflective layer as required by the claims.

Additionally, one of ordinary skill in the art would not have been motivated by Hase to have modified the Soluri miniaturized scintigraphic device as proposed by the Office action. In this regard, Applicants' argument is **not** that features of one reference may not be bodily incorporated into the other reference as stated in the final rejection, but that no combination of Soluri with Hase would make obvious to one of ordinary skill in the art the invention as set forth in the claims pending in this application.

To reiterate, while Hase does state at col. 4, ll. 64-68 that the same principles disclosed for the fan beam collimator can be used for a parallel beam collimator, it remains the case that Hase does not suggest placement of individual crystals between the septa of the disclosed collimator. As previously explained, Hase teaches the requirement of a box frame 13 as shown in Fig. 5, with walls 9 and transparent bottom frame element 12, as a necessary structural requirement of the disclosed collimator. Therefore, the collimator of Hase is intended to be used, and in fact must be used, with a scintillation crystal slab. There simply is no suggestion or teaching in Hase of any other use of the disclosed collimator.

The alleged "teaching" of Hase to improve the manufacturing yield of a conventional mass-produced collimator does not provide the requisite suggestion in the art to modify the specialized, miniaturized device disclosed by Soluri. It is axiomatic that a prior art reference must be considered as a whole for what it discloses to those skilled in the art, and thus it is improper to take individual statements such as the quoted statement out of the context of the prior art reference as a whole. Hase considered as a whole simply does not suggest placement of individual crystals between septa as disclosed by the specialized device of Soluri. Improvement in manufacturing yield of a mass-produced collimator simply does not suggest making any modification to a niche product as disclosed by Soluri. A manufacturer of the Soluri device would not be anxious about improving manufacturing yield as the Soluri device does not have the mass demand of a conventional-use collimator as disclosed by Hase.


While Nishiki discloses coating collimator plates with a reflector, Nishiki does not suggest the modification of Soluri with Hase as proposed. Accordingly the addition of Nishiki does not render the combination of Soluri with Hase proper as proposed. Similarly, Melcher, cited to support the Office action's proposition that TiO_2 and MgO are known as reflecting materials,¹ fails to make the basic combination of Soluri with Hase obvious or proper. Accordingly, no addition of Melcher with the base references could make the claimed invention obvious.

¹ It is not apparent where Melcher, directed to the growth of scintillation crystals, anywhere mentions TiO_2 or MgO , as reflecting materials or otherwise.

Conclusion

For the foregoing reasons claims 1-28 are respectfully submitted to be patentable over Soluri in view of Hase, Nishiki and Melcher. Favorable reconsideration of this application and the issuance of a Notice of Allowance are earnestly solicited.

Please charge any fee or credit any overpayment pursuant to 37 CFR 1.16 or 1.17 to Novak Druce Deposit Account No. 14-1437.

RESPECTFULLY SUBMITTED,					
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